

# Some Observations in Extreme Programming

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# Agenda

- ✱ Extreme Programming (XP)
- ✱ XP Activities
- ✱ Research Data and Data Collection
- ✱ XP Activities Growth
- ✱ XP Activities Effort Distribution
- ✱ XP Activities Correlation
- ✱ Conclusion

# Extreme Programming (XP)

- ✱ Software Processes
- ✱ Agile processes
- ✱ Applicability

# XP is Different

- ✱ Continuity of feedback throughout its short cycles.
- ✱ Incremental planning.
- ✱ Flexibility in scheduling on the basis of business needs.
- ✱ Dependency on unit tests written by both developers and customers.
- ✱ Reliance on team collaboration.
- ✱ Pair Programming.

# XP Activities

- ✱ New design: Adding new classes, data attributes, or methods.
- ✱ Error-fix: Correcting deficiencies uncovered during the development.
- ✱ Refactoring changes system architecture because programmers believe that the new architecture is better than the old.

# Research Data

| Story Number | Added Classes | Deleted Classes | Changes in Class Names | Total Number of Classes |
|--------------|---------------|-----------------|------------------------|-------------------------|
| Story 1      | 1             | 0               | 0                      | 1                       |
| Story 2      | 2             | 0               | 0                      | 3                       |
| Story 3      | 5             | 2               | 0                      | 6                       |
| Story 4      | 2             | 0               | 1                      | 8                       |
| Story 5      | 11            | 0               | 1                      | 19                      |
| Story 6      | 14            | 3               | 2                      | 30                      |

System 1- Number of Classes in Each Story

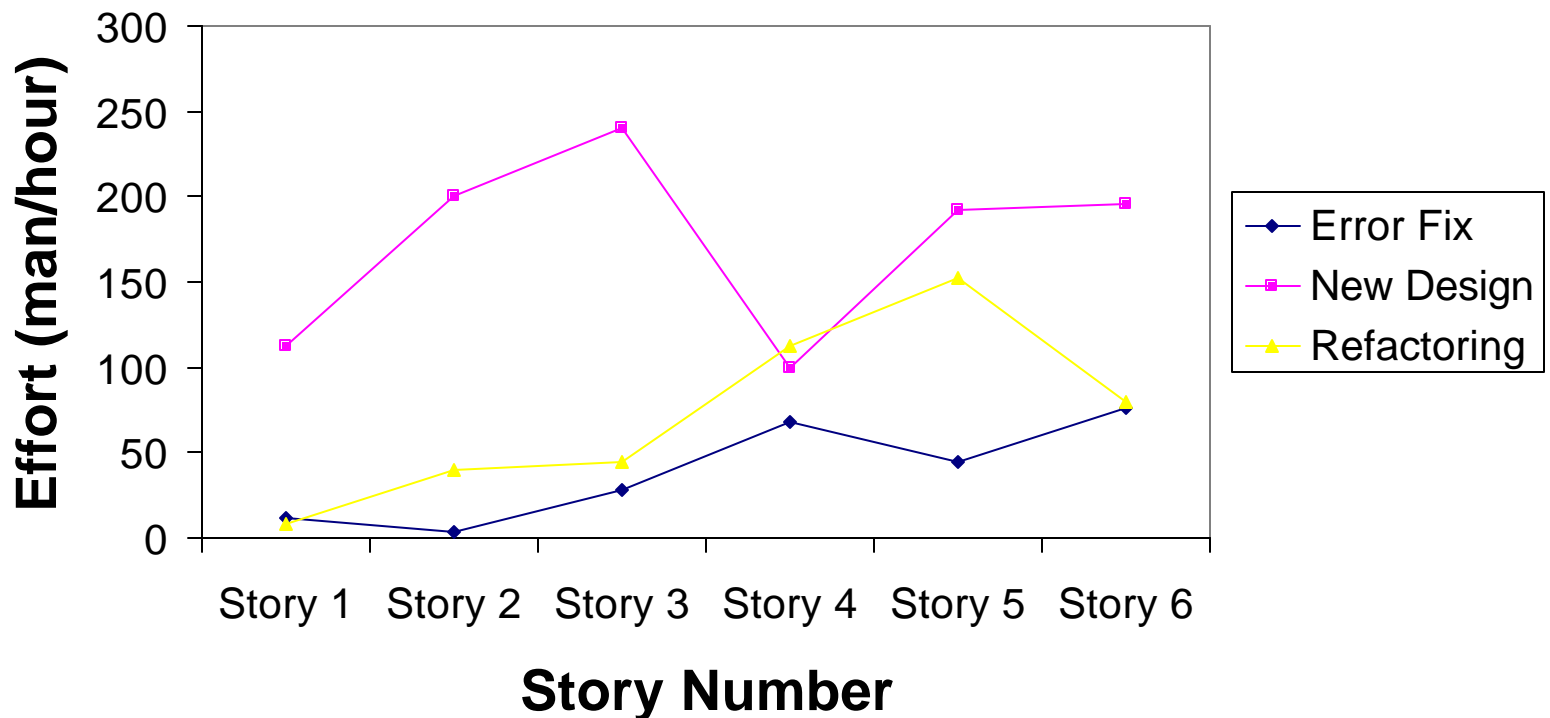
# Research Data

| Story Number | Added Classes | Deleted Classes | Changes in Class Names | Total Number of Classes |
|--------------|---------------|-----------------|------------------------|-------------------------|
| Story 1      | 2             | 0               | 0                      | 2                       |
| Story 2      | 3             | 1               | 1                      | 4                       |
| Story 3      | 5             | 2               | 1                      | 7                       |
| Story 4      | 14            | 4               | 1                      | 17                      |
| Story 5      | 2             | 0               | 2                      | 19                      |
| Story 6      | 34            | 1               | 3                      | 52                      |
| Story 7      | 10            | 12              | 0                      | 50                      |

System 2- Number of Classes in Each Story

# XP Activities Growth

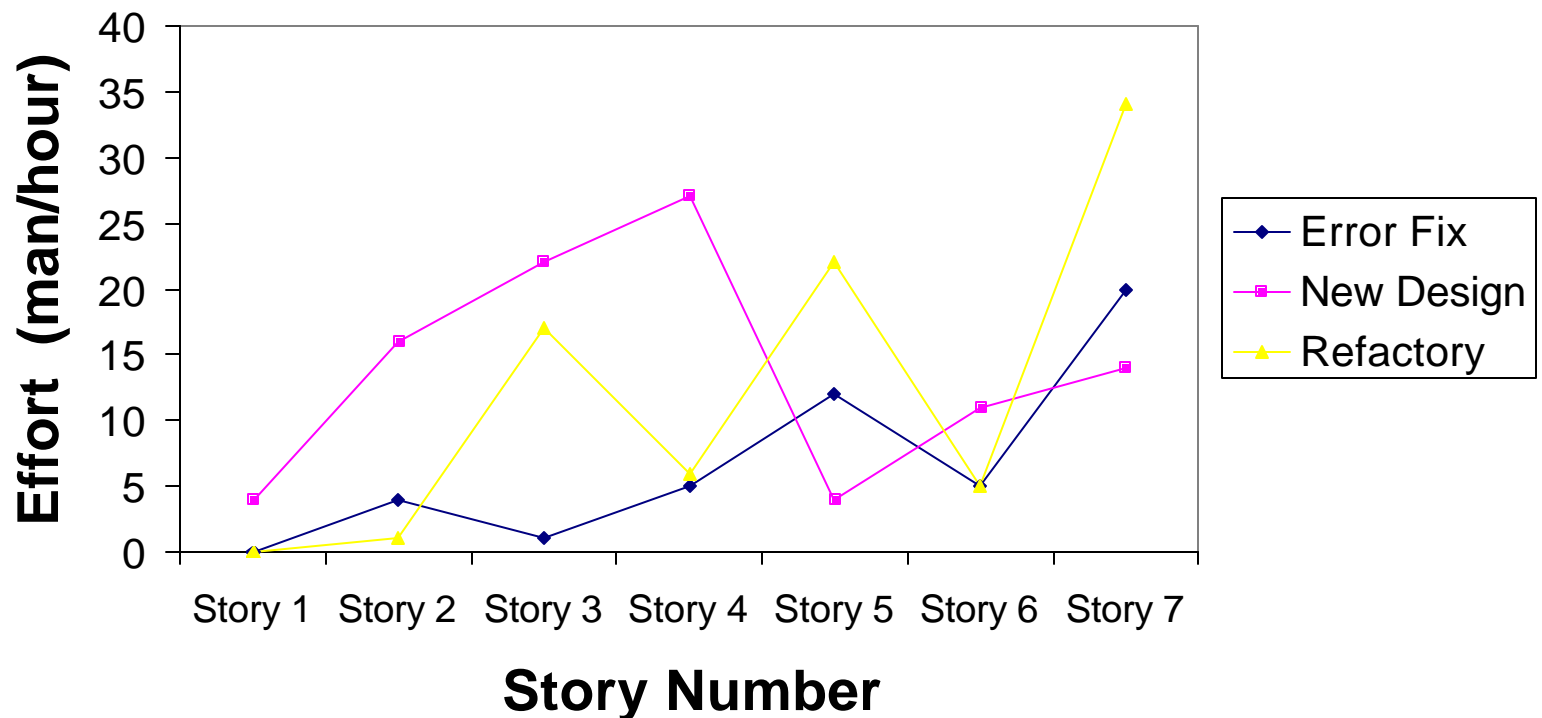
## Project 1- Activities Growth





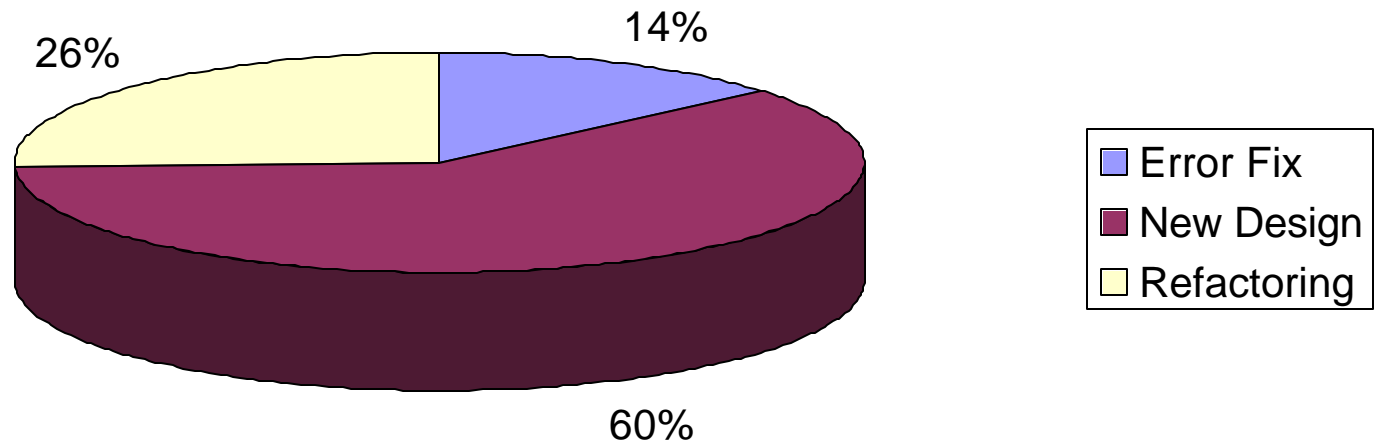
# XP Activities Growth

## Project 2- Activities Growth



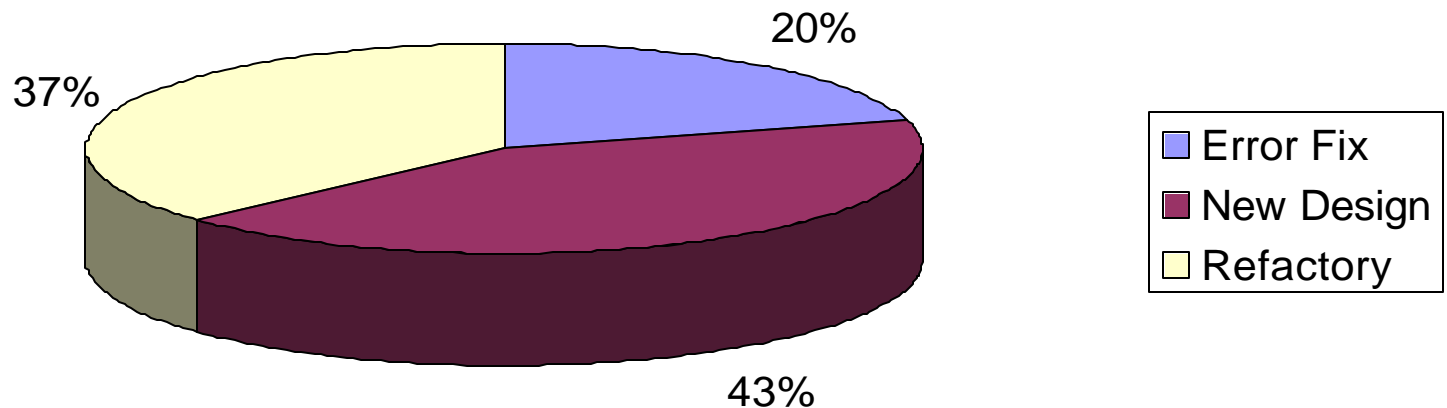
# XP Activities Effort Distribution

## Project 1- Effort Distribution



# XP Activities Effort Distribution

## Project 2- Effort Distribution



# XP Activities Correlation

|                         | P-Value | Pearson correlation |
|-------------------------|---------|---------------------|
| New design, Refactoring | 0.002   | -0.968              |
| New design, Error Fix   | 0.024   | -0.872              |
| Refactoring, Error Fix  | 0.107   | 0.720               |

System 1 – Correlation of XP Activities

# XP Activities Correlation

|                         | P-Value | Pearson correlation |
|-------------------------|---------|---------------------|
| New design, Refactoring | 0.001   | -0.944              |
| New design, Error Fix   | 0.030   | -0.803              |
| Refactoring, Error Fix  | 0.189   | 0.562               |

System 2 – Correlation of XP Activities

# Conclusion

- ✱ Error-Fix Effort Shows a Growth Trend
- ✱ Refactoring Effort Shows a Growth Trend
- ✱ There is no Clear Trend in New Design Effort.